

# THE ANNALS

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XXX.—*Descriptions and Records of Bees.*—LXXI.  
By T. D. A. COCKERELL, University of Colorado.

*Megachile tasmanica*, sp. n.

♂.—Length about 7.6 mm.

Black with white hair, long on face, cheeks, and under side of thorax; on front the very long hairs are stained with brownish, and the scanty hair on disc of mesothorax is somewhat brownish; head large, facial quadrangle much longer than broad; mandibles black; clypeus with a dense beard of pure white hair, but upper part exposed, very densely punctured, but with a smooth shining spot; antennæ slender, black; mesothorax closely and minutely punctured, without hair-spots, except that there is a small tuft of white hair behind each tegula; tegulæ piceous. Wings dusky greyish, stigma and nervures black; anterior coxæ covered with white hair and without spines; anterior tarsi formed essentially as in *M. leeuwinensis*, M.-Waldo, the lobe on second joint large, oval, with a large black spot on a white ground. Abdomen short and broad, densely punctured, the first segment with a tuft of white hair on each side, segments 2 to 4 with thin apical hair-bands, weak in middle; fifth segment with thin glittering white hair; sixth briefly bidentate, the teeth not far apart. The anterior tarsi, and anterior tibiæ at apex, are ferruginous.

*Hab.* George Town, Tasmania, Nov. 19, 1914 (*F. M. Littler*, 2248).

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Allied to *M. leuwinensis*, but easily separated by the wholly black abdomen. It cannot be the male of *M. ordinaria*, Sm., as that has hyaline wings with ferruginous nervures.

*Megachile pugnata pomona*, sp. n.

♀.—Length 15 mm.

Like *M. pugnata*, Say, but the pale hair of thorax, legs, and abdomen reddish yellow, the dorsal surface of sixth abdominal segment densely covered with clear ochreous hair, without any dark hairs intermixed. Median apical lobe of clypeus entire.

*Hab.* Mts. near Claremont, Calif. (Baker; Pomona coll., 183).

*Andrena macrocephala*, sp. n.

♂.—Length about 9 mm.

Black, with an extremely large and broad quadrate head, much broader than the small thorax; eyes diverging below; clypeus very broad and low, sparsely punctured, pale yellow with two pale greyish-brown spots; process of labrum emarginate; mandibles very long, bent in middle, red at tip; cheeks very broad, but rounded behind; flagellum very obscurely reddish beneath; occiput and middle of face with red hair, sides of face with black hair; thorax dull, minutely granular, with long fox-red hair; legs slender, reddish black; tegulae very small, dark brownish. Wings moderately dusky, stigma dull ferruginous, nervures fuscous. Abdomen shining black, without bands, hair at apex soot-colour.

Var. *a.* Head not so large, though still very large and broad; thorax with pale fulvous hair.

*Hab.* Claremont, Calif. (Baker; Pomona coll., 200; var. *a.*, 199).

A remarkable species, suggestive of *A. berberidis*, Ckll., both having a broad head, yellow clypeus, and well-developed malar space. The clypeus is much broader and lower than that of *berberidis*, and there are many other differences.

*Panurginus neomexicanus*, Ckll.

*P. nigrinus*, Viereck, is the female of *P. neomexicanus*. I have numerous females from Beulah, August (one at flowers of *Polemonium*; W. Porter), Rio Ruidoso, prox.

6700 ft., at flowers of *Verbascum thapsus*, July 22 (Townsend), South Fork, Eagle Creek, prox. 8000 ft., at flowers of *Eriogonum macranthus*, Aug. 18 (Townsend); all in New Mexico.

*Panurginus piercei*, Crawford.

The range is greatly extended by females from Las Vegas, N. M., at fls. of *Sphaeralcea cuspidata*, Aug. 1 (W. Porter), and Tularosa, N. M. (Cockerell).

*Panurginus didirupa*, Ckll.

Male from Las Vegas, N. M., at fls. of *Verbesina exauriculata*, July 31 (Cockerell).

*Panurginus atricornis* (Cresson).

Male from Beulah, N. M., Aug. 18 (W. Porter).

*Panurginus nebrascensis*, Crawford.

A male from Lincoln, Nebr., Aug. (Bruner), certainly belongs here, but it has an impressed line down middle of clypeus.

*Panurginus bakeri*, Ckll.

Female from Copeland Park, Boulder Co., Colo., Sept. 6 (S. A. Rohwer).

*Panurginus flavotinctus* (Ckll.).

Female from Florissant, Colo., at fls. of *Cleome serrulata*, Aug. 23 (S. A. Rohwer). This has the tegulae pale testaceous; in *P. bakeri* they are partly dark. *P. flavotinctus* occurs as far south as the Organ Mts., N. M., where Townsend took it in company with *P. pectiphilus*, Ckll., at flowers of *Pectis papposa*. It was also collected by Townsend on the Rio Ruidoso, N. M., prox. 6500 ft., Aug. 4.

*Panurginus picipes* (Cresson).

Males from Pecos, N. M., at fls. of *Rudbeckia ampla*, Aug. 4 (T. & W. Ckll.). This is quite distinct from *P. imptus*, but is very close to *P. albitarsis* (which visits *Rudbeckia* at Santa Fé), yet I think distinct.

*Panurginus boylei*, Ckll.

Beulah, N. M., July (Ckll.); San Ignacio, N. M., Sept. 1 (Porter & Ckll.).

*Panurginus armatireps*, sp. n.

♀.—Length about 6 mm.

Black, the head and thorax with scanty long grey hair; head enormous, the face extremely broad, without any light markings; face shining, front dull, except at extreme sides; cheeks swollen, very broad, polished, armed beneath with a very large tooth; mandibles extremely long, falciform; labrum broadly rounded, depressed in middle, with a boss-like elevation on each side of base; clypeus very broad and low; antennæ very long and slender, black; thorax small; mesothorax and scutellum polished; area of metathorax dull; legs piceous, thinly hairy; tegulæ rufo-piceous. Wings moderately dusky; b. n. falling short of t.-m.; first r. n. meeting t.-c.; second s.m. greatly narrowed above; marginal cell broadly obliquely truncate; abdomen shining, without bands.

*Hab.* Claremont, Calif. (Baker; Pomona coll., 228).

This extraordinary species might have been referred to a new genus, but it is evidently related to *P. atriceps* (Cress.), from which it differs by the large head with toothed cheeks.

*Perdita fedorensis*, sp. n.

♀.—Length nearly 5 mm.

Like *P. vespertilio*, Ckll., except that the flagellum is longer and darker, and conspicuously hooked at end; and the clypeus is dark brown with a white cuneiform mark on each side. The lateral face-marks are between triangular and quadrate, notched above; tubercles with a small white spot. Wings clear, with hyaline nervures and stigma. Abdomen dark brown, without markings. Legs dark brown, the tarsi pallid. The apical two-thirds of the flagellum is rather narrowly testaceous beneath.

*Hab.* Fedor, Texas, April 29, 1898 (Birkmann, 87).

Very close to *P. vespertilio*, but apparently distinct. Mr. Birkmann has also taken *P. ignota*, Ckll. (Lee Co., Texas, Oct.), and *P. crawfordi*, Ckll. (male, Fedor, May 7).

*Perdita verbesinae collaris*, subsp. n.

♂.—Head, mesothorax, and scutellum yellowish green, the mesothorax with slight coppery tints; metathorax blue-green; upper part of front wholly dull, lower part shining; flagellum bright orange, marked with black above at base; sides of clypeus, lower border rather broadly, and a median band yellow; lateral face-marks transverse; upper border of prothorax, and large spots on tubercles, light yellow; middle and hind tarsi dark brown; second and following abdominal segments with orange bands, deeply incised sublaterally, the middle portion of band on second segment almost obsolete.

*Hab.* Rito de los Frijoles, New Mexico, August (*Cockerell*).

This resembles *P. lepachidis*, Ckll., in the colour of the thorax, and seems intermediate between *lepachidis* and *verbesinae*. It may prove to be a distinct species. *P. verbesinae*, var. *maculata*, Ckll., has (♂) yellow middle and hind tarsi, the small joints more or less ferruginous.

*Perdita heliophila*, sp. n.

♀.—Length 8-8.5 mm.

Like *P. albipennis*, but head, thorax, and abdomen without light markings; front dull. Very like *P. verbesinae*, var. *nigrior*, with which I had confused it, but larger, hair of head and thorax above ochreous, stigma pale orange. The mesothorax is shining yellowish green.

*Hab.* Mesilla, New Mexico, three, all at flowers of *Helianthus lenticularis*, Aug. 11 and 15 (*Cockerell*).

Perhaps a variety of *P. albipennis*, but the specimens are all alike, and the appearance is very distinctive.

*Perdita crotonis undecimalis*, subsp. n.

♀.—No supraclypeal mark; clypeus with two very broad black bars, forming a figure 11; lateral marks very short, not reaching level of top of clypeus, squarely notched on inner side above; metallic colour of head and thorax green.

*Hab.* Between Rowe and the Old Pecos Pueblo, New Mexico, at flowers of *Croton*, Sept. 4 (*W. P. Cockerell*).

*Perdita numerata*, Cockerell.

This was described from a female. A male, which I refer here with confidence, is from Mesilla Park, New Mexico,

May 12, by sweeping herbage (Cockerell). It runs in my table of *Perdita* (Proc. Acad. Nat. Sci. Philad. 1893) to *P. maculipes*, from which it is easily known by the dark brown stigma, the pleura with only an oblique yellow band, and the abdominal bands not united at sides. The dark mark on anterior tibia is small, and if the dark markings on anterior and middle legs were absent it would run to the vicinity of *salicis*, *nitidella*, and *eachmans*, where it would readily be known by the dark stigma. The face is pale yellow, and the upward extension of lateral marks is like a closed hand with a very short index-finger pointed; there is a yellow band along lower half of posterior orbits. The second s.m. is not so greatly narrowed above as in the type female. The ventral surface of the abdomen is yellow without markings.

*Perdita birkmanni*, sp. n.

♀.—Length 4 mm. or slightly over.

Head and thorax dark bluish green, dullish, only slightly hairy; head ordinary; clypeus (except the usual dots and a pair of brownish bars), a very small transverse supra-clypeal mark (sometimes having the form of a letter C), lateral marks (broad below, narrowed above, ending obtusely on orbital margin at level of antennæ), labrum, and mandibles (except the rufescent apices), all yellow; cheeks without yellow; antennæ rather long, flagellum pale fulvous beneath; tubercles with a pale yellow mark; tegulæ testaceous. Wings strongly dusky, outer r. n. and t.-c. pallid and weak. Legs dark brown, with the knees, and anterior and middle tibiæ in front yellow. Abdomen with a yellow mark at each side of first four segments, those on first small, the others pointed mesad, not or hardly oblique; venter brown. The stigma is sepia, without a hyaline centre.

*Hab.* Fedor, Texas, June 1 (*Birkmann*, 89). Two specimens.

In my tables of *Perdita* this runs to *P. affinis*, var., but it is known by its small size and other characters. It is much smaller than *P. octomaculata*, Say, and has the lateral face-marks differently shaped, without the strong inner angular notch. Among the Texas species it falls close to *P. jonesi*, Ckll., but differs by being smaller, with the yellow marks on third and fourth abdominal segments transverse (not oblique), supra-clypeal mark present, anterior tibiæ entirely yellow in front.

*Perdita bruneri*, Ckll. (*cockerelli*, Crawford).

The range is greatly extended by a male taken at flowers of *Solidago*, Denver, Colorado, Aug. 24, 1908 (Mrs. C. Bennett).

*Emphoropsis tristissima* (Ckll.).

Claremont, Calif. (Baker ; Pomona coll. 142). A female *E. murihirta*, Ckll., comes with the same data.

*Anthophora crotchii*, Cresson.

Claremont, Calif. (Baker ; Pomona coll. 143).

*Anthophora infernalis*, Dalla Torre.

Claremont, Calif. (Baker ; Pomona coll. 153).

*Anthophora washingtoni*, Ckll.

Claremont, Calif. (Baker ; Pomona coll. 133).

*Anthophora urbana*, Cresson.

Claremont, Calif. (Baker ; Pomona coll. 142).

*Anthophora anstrutheri*, Ckll., variety *a*.

Mts. near Claremont, Calif. (Baker ; Pomona coll. 142). This female differs from the type in having the triangular hair-patch at apex of fifth abdominal segment very pale tawny instead of black.

*Stelis laticincta*, Cresson.

Claremont, Calif. (Baker ; Pomona coll. 186).

*Spinoliella euxantha*, sp. n.

♀.—Length 9.5 mm.

Robust, black, with very bright yellow markings on face and abdomen ; head and thorax with pale ochreous hair ; clypeus (except two brown spots), large triangular lateral face-marks, and spot on base of mandibles (followed by a red shade), bright yellow ; labrum brownish ; flagellum thick and very short, dull red beneath, except basally ; vertex shining, with large and small punctures ; thorax without yellow markings ; mesothorax shining, sparsely punctured, the disc impunctate ; area of metathorax shining,



the basal middle roughened, very delicately plicatulate; legs robust, with pale ochreous hair; middle femora very broad; anterior tibiae broadly, and middle ones more narrowly, yellow at base; tegulae black with a faint reddish tint. Wings dilute brownish; b. n. falling far short of t.-m.; marginal cell pointed at end and appendiculate. Abdomen shining, without hair-bands, but much ochreous hair at apex; segments 1 to 5 with bright yellow bands, all broad at sides, the first narrowed nearly to a point in middle, the second with more than the median third linear, the third and fourth merely narrower in middle, the fifth with a median wedge-shaped incursion of black; venter dark without bands.

*Hab.* Claremont, Calif. (*Baker*; Pomona coll. 229).

In the table in *Trans. Am. Ent. Soc.* xxv. p. 195, this runs out at 10, because the clypeus is yellow and there is no supraclypeal mark except a minute scarcely visible dot. It falls near to *S. zonalis* (Cresson), known only in the male, but is too different to be its female.

*Spinoliella comptula*, sp. n.

♀.—Length about 8.5 mm.

Black, with ivory-coloured face-markings and dull yellow abdominal bands; hair of head and thorax greyish; face broad; clypeus (except lower margin, and a pair of black marks like triangular flags on poles, their points directed toward the eyes), subcircular supraclypeal mark, triangular lateral face-marks (produced above, ending in a sharp point on orbital margin a little above level of antennae), lower part of labrum, and large patch on base of mandibles, ivory-colour; flagellum short and thick, dull red beneath except at base; mesothorax shining, sparsely punctured (punctures large and small), impunctate on disc; thorax without light markings; area of metathorax shining, its base broadly dull; anterior knees with a small yellow spot; anterior tibiae and tarsi in front with ferruginous hair. Abdomen with five yellow bands, the fifth broken into two large patches, the others continuous but narrow in middle, the second with its large lateral expansions broadly excavated on outer side; venter without bands.

*Hab.* Mountains near Claremont, Calif. (*Baker*; Pomona coll. 224).

In my table cited it runs to 6, but falls out on account of the peculiar face-markings. In Fowler's table ('*Psyche*,' Sept. 1899) it runs to *S. cincta* (Cress.), but that has the face all dark in the female.



*Neolarra alba*, sp. n.

♂.—Length about 4 mm.

Robust, covered with white scale-like pubescence; mandibles and labrum ferruginous, the latter with a boss-like elevation on each side; face broad; flagellum thick, ferruginous; legs covered with white pubescence, but tarsi and knees can be seen to be pale ferruginous; tegulæ dark, covered with light hair; second s.m. extremely small and narrow; stigma dark; tegument of abdomen dark, with the hind margins of segments reddish, but the whole densely covered with white hair, that of the hind margins forming chalky-white bands; venter densely covered with white hair.

*Hab.* Claremont, California (*Baker*; Pomona coll. 1913).

*Neolarra vittata*, sp. n.

♂.—Length about 4 mm.

Differing from *N. alba* as follows: less robust, flagellum clearer red, tegulæ reddish, legs not so densely tomentose (knees, tibiæ at apex, and tarsi clear red), chalk-white bands of abdomen very distinct, the basal part of segments appearing darker and browner. The distance between the tegulæ is 800 microns; in *N. alba* it is 865.

*Hab.* At flowers of *Dithyrea wislizeni*, Mesilla Park, New Mexico, 3800 ft., May 7 (*Cockerell*).

The known species of *Neolarra* may be separated thus:—

|                                                                                                    |                            |
|----------------------------------------------------------------------------------------------------|----------------------------|
| Abdomen red .....                                                                                  | 1.                         |
| Abdomen not red .....                                                                              | 3.                         |
| 1. Very small, length 4 mm. or less .....                                                          | <i>pruinosa</i> , Ashm.    |
| Larger, at least 5 mm. ....                                                                        | 2.                         |
| 2. Abdomen very light red, tegulæ pale clear red.....                                              | <i>verbesinæ</i> (Ckll.).  |
| Abdomen deep red, tegulæ dark .....                                                                | <i>congregata</i> , Crawf. |
| 3. Less robust; abdomen appearing dark brownish plumbeous, with very conspicuous white bands ..... | <i>vittata</i> , Ckll.     |
| More robust; abdomen very white .....                                                              | <i>alba</i> , Ckll.        |

*Dioxys aurifuscus* (Titus).

The range is greatly extended by a female from Claremont, California (*Baker*; Pomona coll. 194).

*Dioxys pomonæ*, Cockerell.

Described from the male. The female (Claremont, *Baker*; Pomona coll. 191) is a little over 8 mm. long, flagellum

only very obscure reddish beneath, tegulae bright ferruginous with a black spot in front, end of abdomen pointed, but forming an angle greater than a right angle.

*Dioxys pacificus*, sp. n.

♀.—Length a little over 9 mm.

Similar to *D. productus subruber* (Ckll.), but differing thus: mesothorax less coarsely punctured; postscutellar spine smaller; b. n. meeting t.-m.; second s.m. more narrowed above; legs black, the knees obscurely reddish; abdomen much more finely punctured throughout, first three segments terra-cotta red, hair-bands on hind margins of segments thin and white; apex of abdomen broadly rounded, not truncate.

*Hab.* Claremont, California (Pomona coll. 190).

*Xylocopa orpifex*, Smith.

Mts. near Claremont (*Baker*; Pomona coll. 175). Lordsburg, Calif., May 11 (*H. H. Nininger*).

These specimens are rather large, but not to be separated. The species extends eastward to Oak Creek Canon, Arizona (*Snow*).

*Halictus smithii*, Dalla Torre, variety *a*.

♀.—Length 5-5.5 mm.

Black, with scanty, pale, slightly ochreous hair, caudal fimbria concolorous; head ordinary, broad; clypeus shining, with very few scattered punctures; mandibles red in middle; supraclypeal area convex, shining, without evident sculpture; front dull; flagellum ferruginous beneath except at base; mesothorax dullish, extremely minutely punctured, the median impressed line very distinct; area of metathorax semilunar, with very delicate, weak, straight, longitudinal plicae; posterior truncation not sharply defined above; tegulae rufo-testaceous. Wings greyish hyaline; stigma large, dull ferruginous; nervures fuscous or reddish fuscous; third s.m. very broad above. Legs black, with pale ochreous hair. Abdomen shining black, without definite hair-bands, but the sides of the segments are thinly beset with long hairs, and the fifth has similar sparse hair all over.

Microscopical characters: clypeus and supraclypeal area very distinctly reticulate, with widely scattered deep punctures; scape well punctured; middle of front rough and

extremely densely punctured; mesothorax minutely reticulate, with rather sparse small punctures; hind spur with only extremely minute saw-like teeth.

*Hab.* Waipara, New Zealand, Nov. 21, 1915 (Guy Brittin).

Mr. Brittin took four females, two with dark tegulae, two with rufo-testaceous tegulae. I thought at first that I could distinguish two species, that with darker tegulae being the true *H. smithii* (*familiaris*, Smith) and the other new. After minute comparisons, in which I am fortunately able to include a co-type of *smithii* from Smith's collection, I conclude that there is only one variable species. The hind margins of the first and second abdominal segments of *H. smithii* are very narrowly vibrissate with white hair, though this is not always very evident. Cameron (Trans. N. Zealand Inst. vol. xxxii. p. 17) separates *smithii* from *sordidus* and *huttoni* by the character of the base of median segment (metathorax), but his statement is unsatisfactory, as the sculpture in *smithii* is very delicate, appearing rugose under a low magnification, but showing fine plicæ under a higher.

*Halictus gulosus punctiferus*, subsp. n.

♀.—Like *H. gulosus* (*H. arcualus gulosus*, Ckll.), but mesothorax more closely punctured, especially at sides of middle, where the punctures are hardly separated by a space equal to the width of one; the hind margins of the abdominal segments are very narrowly or often scarcely at all pallid. Wings brownish. Very like *H. craterus*, Lovell, but easily separated by the impunctate hind margin of first abdominal segment and the larger stigma.

*Hab.* Boulder, Colorado, twenty-six specimens with the following data: March 25 (*Hite*); March 22 (*Hite*); April 11 (*Rohwer*); March 30, fls. *Salix bebbiana* (*Rohwer*); May 22, fls. *Salix luteosericea* (*Rohwer*); April 23, fls. *Taraxacum taraxacum* (*Rohwer*); April 14, fls. *Rulac texanum* (*Hite*); April 14, fls. *Prunus pennsylvanica* (*Hite*); May 20, fls. *Bursa bursa-pastoris* (*Rohwer*); May 13, fls. *Prunus melanocarpa* (*Rohwer*); Aug. 14 (*Rohwer*).